

INSTITUUT VIR PATOLOGIE

MEDIESE FAKULTEIT

BEATRIXSTRAAT.

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Dear Professor Lederberg,

It is an unfortunate thing that somehow or other you got hold of a previous address of mine, an address where I have not lived now for quite a long time. And this is the cause of the delay with which both your reprints and your postcard have reached me.

I am very much impressed by the volume and thoroughness of your work on mutants. That is a closed subject to me.

You see, I wrote that article on diffraction and filtration for the J. Path. Bact. partly because I wanted to show that I had thought of all that first, and partly because I wanted to make people see the connection between size and filtration and ascent in filterpaper. ~~So~~ ^{Two} many people wrote at cross-purposes.

I worked on these things for many years, and then I went over to blood diffraction which appeared to be a richer field..

Now there is no doubt in my mind that say all Salmonellas have their own characteristic diameters. As I used to put it, the daughters of this family all have different waists. In staphylococci it was the same.

All the old reprints, and in those days I wrote chiefly for south-african journals, very obscure ones, but I was a country practitioner and did not know any better, ~~and~~ are alas gone. I never had so many, and the demand rose high.

My technique finally was a flat glass container, the kind you see advertised as containers for filter solutions in optics, chiefly photomicrography. I sterilised by formol vapour, put a layer of agar on one flat side, let the bacteria run over the surface in a thin suspension, so as to get uniform smooth growth, and then incubated. Incubation had to be a given time. As you know Hentici showed that size varies during growth and I found the same.

Then I had an arrangement of a horizontal beam from a small arc lamp with its condenser, and this went through a diaphragm and then through the culture, the beam being about 1 cm. across. Behind the glass box or container I had a simple lens, focal distance a few cm. and then either a screen of frosted glass or a colour-photographic plate. I suppose everybody would build this up according to his own fancy. I had an arrangement with which the colour-photographic plate could travel horizontally, so that I photographed just a strip of the ~~used~~ spectrum for each culture and it was quite amusing to get a whole range of sizes of spectra on one plate, representing various microbes.

BUT : it was quite a job to work under identical conditions all the time. Slight variations especially in time made a difference.

I have also used ordinary testtubes with cultures in them (I al-

ways grew my bacteria on agar) but then one has to take into account that the curve of the tube, filled with agar, acts as a lens. The flat containers or boxes often were difficult to clean and to handle.

Then my attention went to begin with, to blood, and as regards bacteria to what I then called differential filtration. That is all in that paper.

To sum up, you may find differences in diameters between haploid and diploid bacteria. But I doubt whether it is worth while bothering. You see, Nicolle (I quote the reference) was clever enough to see the colours in his cultures and he noticed a difference between V, containing strains and those that had no Vi. Now his technique reads as if it were simple, and you might do worse that try it first.

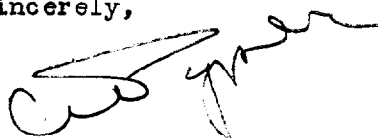
And then Maurice Landy (The visual identification of V and W form colonies in Salmonella cultures) in Reprint No. 3034 Public Health Reports Vol. 65, no 30, July 28, 1950 pages 950 - 951 has also quite independently stumbled on the diffraction colours I saw and marvelled at in my little village in 1918 or 1919.

You will understand that I have followed the story of diffraction in surface cultures with great interest. It is strange that three different people noticed the same phenomenon at such long intervals. Perhaps if I had not published my first papers in such obscure places, this confusion would not have arisen. Even at the moment I have some doubt whether Nicolle and Landy realize that they are dealing not with "iridescence" (whatever that may be), but with just diffraction.

I am afraid all this is not much use to you. But at any rate I have done what I could to give you some information about this work.

If there is anything else I can do to help you in this matter, in case you choose to go on with it, I shall be very pleased to oblige.

Yours sincerely,



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